DETAILED ACTION

Response to Amendment

1. Applicant's amendment on December 18, 2009 has been considered. Claims 6, 15, 22, 27, 34, 41, 43, 46, 57 and 59 are cancelled. Claims 47-56 are withdrawn. Claims 60-70 are new. Claims 1-5, 7-14, 16-21, 23-26, 28-33, 35-40, 42, 44, 45, 58 and 60-70 are under consideration.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 60-64 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

In claim 60, the limitation of "a plurality of load cells for measuring a weight of the transfer pot and any catalyst and/or additive drawn into the transfer pot from said bin or bins" (lines 11-12) does not appear to be supported by Applicant's disclosure. As seen in FIG. 1, the load cells (56) are disposed below the plate (57) fixedly coupled to the legs (20) of the transfer pot (18), with the dust collector (16) mounted on top of the transfer pot. Thus, the load cells (56) must measure the weight of the entire loading unit, comprising the transfer pot and the dust collector, and any catalyst and/or additive drawn into the loading unit.

3. Claims 63 and 67 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. At line 2, "the regenerator" lacks proper positive antecedent basis.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-4, 7-9, 11, 16-21, 23, 24, 26 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman (US 4,005,908) in view of van Aalst (US 4,701,080).

Regarding claim 1, Freeman (see FIG. 1) discloses an apparatus comprising:

a dust collector (i.e., filter assembly 64) in fluid communication with a storage bin (10);

a vacuum producer (i.e., pump 120) in fluid communication with the dust collector, the vacuum producer being capable of generating a vacuum within the dust collector to draw material into the dust collector (see column 3, lines 55-59; column 4, lines 28-45);

a transfer pot (i.e., defined by cylindrical wall 48 and bottom section 46) in fluid communication with the dust collector for receiving material from the dust collector, the transfer pot being in fluid communication with a point of use for the material (i.e., via conduit 116) and a source of pressurized air (i.e., supplied by lines 130, 112, via pump 120); wherein the transfer pot is capable of being pressurized so that the material may be transferred from the transfer pot to the point of use (see also column 3, line 34 to column 4, line 45); and

a plurality of load cells (i.e., labeled "scales") that are capable of measuring the weight of

the dust collector, the transfer pot and the material drawn into the dust collector.

Although Freeman does not disclose that the point of use comprises, specifically, a fluidized catalytic cracking unit, the unit is not considered an element of the claimed apparatus. Note the recitation of an intended use of the system "*for* storing and loading catalyst and/or additives into a fluidized catalytic cracking unit" in the preamble of the claim. MPEP 2111.02. The apparatus of Freeman would be capable of performing the intended use as recited in the preamble, and therefore the apparatus meets the claim. In addition, the recitations with respect to the manner of operating the apparatus or the materials worked upon by the apparatus do not impart patentable weight to the claim. MPEP 2114, 2115.

The apparatus of Freeman is the same as the claimed apparatus, except that Freeman does not specifically disclose a means for monitoring pressure in the transfer pot. As defined in Applicant's specification (e.g., at paragraph [0080]), said means corresponds to a pressure transducer or equivalents thereof.

van Aalst teaches an apparatus similar to the apparatus of Freeman, said apparatus comprising: a dust collector (i.e., filter containment housing 42; FIG. 1) and a transfer pot (i.e., transfer or pressure vessel 12); wherein said transfer pot is capable of being pressurized (i.e., by air admitted by fluid pressure inlet line 18; see column 7, line 18 to column 8, line 30) so that a material in the transfer pot can be transferred to a point of use (i.e., via inlet end 20a). In particular, van Aalst teaches that a conventional pressure sensor (123) is used to detect when a predetermined pressure is reached within the pressure vessel, so as to enable control over the opening and closing of outlet control valve 122. The opening of valve 122 initiates the material discharge cycle. (see column 8, lines 23-30). The conventional pressure sensor is considered an

equivalent to the claimed means defined under 35 U.S.C. 112, sixth paragraph.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a means for monitoring the pressure in the transfer pot, e.g., in the form of a conventional pressure sensor, in the apparatus of Freeman, because the conventional pressure sensor would allow for the determining of the pressure within the transfer pot, so as to enable the automated opening and closing of the valve for controlling the material discharge from the transfer pot after a predetermined pressure was reached, as taught by van Aalst.

Regarding claim 2, Freeman discloses a storage bin (10) and conduit (54), equipped with a flexible coupling (157), for coupling the dust collector and the storage bin, so that the dust collector and storage bin are in fluid communication via said conduit (see column 2, lines 39-44; column 5, lines 50-55). Freeman, however, does not specifically disclose the use of a "hose" for providing the fluid communication. In any event, the examiner takes Official Notice that the selection of a hose, as an alternative to the conduit with the flexible coupling, for providing fluid communication between the vessels while enabling vertical movement of the loading unit, would have been considered conventional to those having ordinary skill in the art.

Regarding claim 3, the apparatus further comprises a first valve (55) for isolating the dust collector (64) from the storage bin (10) on a selective basis.

Regarding claim 4, the dust collector comprises a filter (see FIG. 3; column 2, line 45 to column 3, line 12) in fluid communication with the vacuum producer (i.e., via line 124), so that the filter collects dust from within the dust collector.

Regarding claims 7 and 23, Freeman discloses that the loading unit is mounted on a plurality of legs (56, 58, 60, 62; see column 2, lines 36-39), wherein the legs are mounted on the

load cells (i.e., "scales"). Freeman, however, fails to disclose a cabinet for housing the dust collector and transfer pot, and the claimed mounting configuration to the cabinet to the load cells. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a cabinet, and a corresponding mounting of the cabinet to the load cells, in the apparatus of Freeman, because the examiner takes Official Notice that the provision of a cabinet for housing solids handling equipment, for preventing contamination of the solids being handled, as well as the surrounding environment, would have been considered conventional to one having ordinary skill in the art.

Regarding claim 8, the dust collector comprises a substantially cylindrical upper portion (i.e., including annular base section 66) and an adjoining, substantially conical lower portion (i.e., tapered section 50); and the transfer pot comprises a substantially cylindrical upper portion (i.e., cylindrical section 48) and a substantially conical lower portion (i.e., bottom section 46) adjoining the upper portion of the transfer pot.

Regarding claim 9, the lower portion (50) of the dust collector has an opening formed therein for permitting material to flow from the dust collector to the transfer pot.

Regarding claim 11, the lower portion (46) of the transfer pot (44) has an opening formed therein (i.e., in communication with conduit 116) for permitting material to be transferred from the transfer pot to a point of use (see FIG. 1).

Regarding claims 16 and 17, the storage bin and the dust collector are non-adjoining; and the dust collector adjoins the transfer pot. (see FIG. 1).

Regarding claim 18, Freeman (see FIG. 1) discloses an apparatus comprising:

a storage bin (10) at a first location;

a loading unit (i.e., comprising batching vessel 44 and filter assembly 64) positioned in a second location remote from the first location; and

a plurality of load cells (i.e., labeled "scales"; see column 5, lines 43-55), capable of measuring a weight of the loading unit and material within the loading unit;

wherein the loading unit is in fluid communication with the storage bin (i.e., via conduit 53) and a point of use (i.e., via conduit 116) on a selective basis (i.e., by manipulation of, e.g., valves 55, 118); and wherein the loading unit is capable of being evacuated (i.e., via conduit 124 and pump 120) so that a resulting vacuum within the loading unit draws material from the storage bin, and the loading unit is capable of being pressurized (i.e., by supplying air via pump 120 and conduits 130, 112, and manipulation of valves), so that material may be transferred to its point of use; (see column 3, lines 55-59; column 4, lines 28-45).

Although Freeman does not disclose that the point of use comprises, specifically, a fluidized catalytic cracking unit, the unit is not considered an element of the claimed apparatus. Note the recitation of an intended use of the system "*for* storing and loading catalyst and/or additives into a fluidized catalytic cracking unit" in the preamble of the claim. MPEP 2111.02. The apparatus of Freeman would be capable of performing the intended use as recited in the preamble, and therefore the apparatus meets the claim. In addition, the recitations with respect to the manner of operating the apparatus or the materials worked upon by the apparatus do not impart patentable weight to the claim. MPEP 2114, 2115.

The apparatus of Freeman is the same as the claimed apparatus, except that Freeman does not specifically disclose a means for monitoring pressure in the transfer pot. As defined in Applicant's specification (e.g., at paragraph [0080]), said means corresponds to a pressure

transducer or equivalents thereof.

van Aalst teaches an apparatus similar to the apparatus of Freeman, said apparatus comprising: a dust collector (i.e., filter containment housing 42; FIG. 1) and a transfer pot (i.e., transfer or pressure vessel 12); wherein said transfer pot is capable of being pressurized (i.e., by air admitted by fluid pressure inlet line 18; see column 7, line 18 to column 8, line 30) so that a material in the transfer pot can be transferred to a point of use (i.e., via inlet end 20a). In particular, van Aalst teaches that a conventional pressure sensor (123) is used to detect when a predetermined pressure is reached within the pressure vessel, so as to enable control over the opening and closing of outlet control valve 122. The opening of valve 122 initiates the material discharge cycle. (see column 8, lines 23-30). The conventional pressure sensor is considered an equivalent to the claimed means defined under 35 U.S.C. 112, sixth paragraph.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a means for monitoring the pressure in the transfer pot, e.g., in the form of a conventional pressure sensor, in the apparatus of Freeman, because the conventional pressure sensor would allow for the determining of the pressure within the transfer pot, so as to enable the automated opening and closing of the valve for controlling the material discharge from the transfer pot after a predetermined pressure was reached, as taught by van Aalst.

Regarding claims 19 and 31, the loading unit comprises a dust collector (i.e., filter assembly 64) and a transfer pot (i.e., defined by cylindrical wall 48 and bottom section 46), wherein the dust collector adjoins the transfer pot. (see FIG. 1).

Regarding claim 20, the apparatus comprises a vacuum producer (i.e., pump 120; FIG. 1), capable of evacuating the loading unit.

Regarding claim 21, the dust collector comprises a filter (see FIG. 3; column 2, line 45 to column 3, line 12) in fluid communication with the vacuum producer (i.e., via line 124), capable of collecting dust generated by the transfer of material from the storage bin (10).

Regarding claim 24, the dust collector comprises a substantially cylindrical upper portion (i.e., including annular base section 66) and an adjoining, substantially conical lower portion (i.e., tapered section 50); and the transfer pot comprises a substantially cylindrical upper portion (i.e., cylindrical section 48) and a substantially conical lower portion (i.e., bottom section 46) adjoining the upper portion of the transfer pot.

Regarding claim 26, the lower portion (46) of the transfer pot has an opening formed therein (i.e., in communication with conduit 116) for permitting material to be transferred from the transfer pot to a point of use (see FIG. 1).

5. Claims 5 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman (US 4,005,908) in view of van Aalst (US 4,701,080), as applied to claims 1 and 18 above, and further in view of Harpham (WO 00/48723).

Regarding claim 5, Freeman fails to disclose a volume chamber and a moisture trap for drying the air. Harpham, however, teaches that when compressed air is used as the conveying medium, a dehumidifying apparatus may be connected before or after the compressor, if the material being conveyed is sensitive to moisture (see page 4, lines 12-13). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a volume chamber/moisture trap for drying the air used to pressurize the loading unit in the modified apparatus of Freeman, because such means would have prevented the moisture in the air from affecting a moisture sensitive material being conveyed by the apparatus, as taught by

Harpham. The Examiner further takes Official Notice that a volume chamber/moisture trap would have been considered a conventional dehumidifying apparatus in the art.

Regarding claim 28, Freeman is silent as to the second location being no more than approximately twenty feet from the first location. In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to configure the second location to be no more than approximately twenty feet away from the first location in the modified apparatus of Freeman, on the basis of suitability for the intended use and absent a showing of unexpected results thereof, e.g., in order to minimize the amount of space occupied by the system. Furthermore, the claimed distance would have been considered conventional in the art (see Harpham, page 4, line 19 to page 5, line 3).

6. Claims 14, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman (US 4,005,908) in view of van Aalst (US 4,701,080), as applied to claims 1 and 18 above, and further in view of Brandauer et al. (EP 476 249).

Freeman fails to disclose at least two storage bins, wherein another of the hoses is coupled to the dust collector and a second storage bin, and a manifold places the loading unit in fluid communication with the at least two storage bins on a selective basis. Brandauer et al., however, teaches a conventionally known apparatus (see FIG. 2; Abstract; Machine Translation) for pneumatically conveying bulk material from a plurality of sources to a single destination, wherein the apparatus comprises a first bin (not shown) and a second bin (not shown), wherein the bins are coupled to the loading unit via piping (19 and 20, respectively), and the bins are isolated from the loading unit via a first valve (21) and a second valve (22), respectively; the valves and piping forming a manifold. It would have been obvious for one of ordinary skill in

the art at the time the invention was made to provide the claimed configuration of another storage bin, hose and a manifold, etc. in the modified apparatus of Freeman, on the basis of suitability for the intended use thereof, because the configuration would have allowed for the conveyance of a bulk material from a plurality of sources to a single destination, as taught by Brandauer et al. Also, the duplication of parts for multiplied effect was held to be obvious. See MPEP 2144.04.

7. Claims 60-63 and 65-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. (US 6,974,559) in view of Krambrock et al. (US 4,301,880).

Regarding claims 60 and 61, Evans (see prior art in FIG. 2, column 1, line 44 to column 2, line 19) discloses an apparatus comprising a fluidized catalytic cracking unit (i.e., FCC unit 110) and a system for storing and loading catalyst and/or additive into the fluidized catalytic cracking unit; said system comprising a vessel (240) and a transfer pot (220), wherein the transfer pot is capable of being pressurized (i.e., by a pressure control device 228; by air compressor 108). A plurality of load cells (210) are provided for measuring a weight of the transfer pot (220) and any catalyst and/or additives drawn into the transfer pot. Also, as seen in FIG. 2, the vessel (240) comprises a fill port for catalyst located in the upper portion of the vessel. The apparatus of Evans is the same as the claimed apparatus, except that Evans is silent as to the vessel (240) comprising the recited dust collector, wherein a vacuum producer generates a vacuum within the dust collector so that the dust collector can draw catalyst and/or additive from a remotely located storage bin into the dust collector.

Krambrock et al., however, teaches vessel configured as a dust collector (see, e.g., prior art in FIG. 1; alternatively, FIG. 4), wherein the vessel is capable of being evacuated (e.g., via a

suction blower a, labeled in FIG. 1) so that the resulting vacuum within the vessel draws material from remotely located storage bins (e.g., containers e, l in FIG. 1) into the vessel.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the vessel (240) in the apparatus of Evans to comprise the recited dust collector capable of evacuation by a vacuum producer, in order to provide a conventional arrangement for enabling the refilling of the vessel (240) with catalyst from a bulk storage location without the discharge of material into the atmosphere, as evidenced by Krambrock et al.

Regarding claims 62 and 63, although Evans does not specifically state a means for monitoring the pressure in the loading unit and the regenerator of the fluid catalytic cracking unit (e.g., pressure transducers, or equivalents thereof, as defined at paragraph [0080] of the specification), or means for determining a pressure differential between the loading unit and the regenerator of the fluid catalytic cracking unit (e.g., a controller, and equivalents thereof, as defined at paragraph [0080] of the specification), the examiner takes Official Notice that the provision of pressure transducers and controllers for monitoring a pressure in different portions of an apparatus operating under elevated pressures, for reasons of safety and process control, would have been considered well known to those having ordinary skill in the engineering art.

Regarding claims 65 and 68, Evans (see FIG. 4, column 3, line 34 to column 6, line 33) discloses an apparatus comprising a fluidized catalytic cracking unit (i.e., FCC unit 424) and a system for storing and loading catalyst and/or additive into the fluidized catalytic cracking unit; said system comprising a loading unit including a vessel (440) and a transfer pot (420), wherein the transfer pot of the loading unit is capable of being pressurized (i.e., by a pressure control device 428; by fluid source 406). A plurality of load cells (410) are provided for measuring a

weight of the loading unit (specifically, a weight of the vessel 440 portion of the loading unit) and any catalyst and/or additive. Evans further discloses that the vessel (440) may be filled with catalyst through a fill port (442) located in an upper portion of the vessel. Evans, however, is silent as to the vessel (440) comprising the recited dust collector, which is capable of being evacuated so that a resulting vacuum within the dust collector draws catalyst from a remotely located storage bin into the loading unit.

Krambrock et al., however, teaches vessel configured as a dust collector (see, e.g., prior art in FIG. 1; alternatively, FIG. 4), wherein the vessel is capable of being evacuated (e.g., via a suction blower a, labeled in FIG. 1) so that the resulting vacuum within the vessel draws material from remotely located storage bins (e.g., containers e, l in FIG. 1) into the vessel.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the vessel (440) in the apparatus of Evans to comprise the recited dust collector capable of evacuation, in order to provide a conventional arrangement for enabling the refilling of the vessel (440) with catalyst from a bulk storage location without the discharge of material into the atmosphere, as evidenced by Krambrock et al.

Regarding claims 66 and 67, Evans further discloses that during operation, the transfer pot will be pressurized by the pressure control system (428) to a specific pressure level that facilitates the injection of catalyst from the transfer pot (420) to the FCC unit (424). For example, the pressure control system typically pressurizes the transfer pot to at least about 20 pounds per square inch (see, e.g., column 5, lines 51-64). The control module (404) automates the process. Although Evans does not specifically state a means for monitoring the pressure in the loading unit and the regenerator of the fluid catalytic cracking unit (e.g., pressure transducers,

or equivalents thereof, as defined at paragraph [0080] of the specification), or means for determining a pressure differential between the loading unit and the regenerator of the fluid catalytic cracking unit (e.g., a controller, and equivalents thereof, as defined at paragraph [0080] of the specification), the examiner takes Official Notice that the provision of pressure transducers and controllers for monitoring a pressure in different portions of an apparatus operating under elevated pressures, for reasons of safety and process control, would have been considered well known to those having ordinary skill in the engineering art.

Allowable Subject Matter

8. Claims 10, 12, 13, 25 and 58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The claims are allowable for the same reasons set forth in the previous Office Action, mailed on October 5, 2009.

9. Claims 32, 33, 35-40, 42, 44 and 45 are allowable for the same reasons set forth in the previous Office Action, mailed on October 5, 2009.

10. Claims 69 and 70 are allowable. The prior art does not disclose or adequately suggest the claimed apparatus for injecting catalyst and/or additives into a fluidized catalytic cracking unit, said apparatus comprising a dust collector, a transfer pot, and a plurality of load cells for measuring the weight of the dust collector, the transfer port and any catalyst and/or additive drawn into the dust collector, and wherein, in particular, the vacuum producer is in fluid communication with the source of pressurized air, and the apparatus comprises the recited configuration of a first valve, second valve, third valve, fourth valve, and controller.

11. Claim 64 would be allowable if rewritten to overcome the rejection(s) under 35

U.S.C. 112, first paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art does not disclose or adequately suggest the claimed apparatus comprising a fluidized catalytic cracking unit and a system for injecting catalyst and/or additives into the fluidized catalytic cracking unit, wherein the system is provided with a vacuum producer in fluid communication with the source of pressurized air, and the apparatus further comprises the recited configuration of a first valve, second valve, third valve, fourth valve, and controller for controlling the injection of catalyst and/or additives into the fluidized catalytic cracking unit.

Response to Arguments

12. Applicant's arguments filed December 18, 2009 regarding the rejection of claims 1-5, 7-9, 11, 14, 16-21, 23, 24, 26 and 28-31 have been considered, but they are moot in view of the new ground(s) of rejection as necessitated by amendment. In particular, independent claims 1 and 18 now include the newly added limitation of a "means for monitoring pressure in the transfer pot". This limitation is taught by the newly cited prior art to van Aalst.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER A. LEUNG whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter D. Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jennifer A. Leung/
Primary Examiner, Art Unit 1797